Appendix C
Mercury Reduction Projects in the Lake Michigan Basin

Indiana Mercury Dental Program

The Indiana Department of Environmental Management (IDEM), in partnership with the Indiana Department of Health, the Indiana Dental Association, and Indiana Solid Waste Management Districts, held an elemental (liquid) mercury sweep for Indiana dentists in early 2003. The sweep collected more than 240 pounds of elemental mercury from 52 dentists around the state. IDEM and its partners have also agreed to work together to create an environmental pledge program for Indiana dentists. The anticipated completion date of the pledge program is late 2003. More information can be found at http://www.in.gov/idem/mercury/programs/dentalmercury.html.

Hospitals for a Healthy Environment

The Hospitals for a Healthy Environment (H2E), a joint project of the American Hospital Association, Health Care Without Harm, the American Nurses Association, and the US EPA, is a voluntary program with 474 partners representing 1,936 facilities: 542 hospitals, 1,143 clinics, 52 nursing homes, and 199 other types of facilities. These partners are health care facilities that have pledged to eliminate mercury and reduce waste, consistent with the overall goals of H2E. This program is continuing to grow and has enlisted 139 new partners in the last year.

Air Emissions Regulation

The US EPA took a final rulemaking step to control emissions from waste burning in January 2003, when control standards for small municipal waste combustors were finalized. In addition, mercury emissions reduction requirements have been finalized for mercury cell chlor-alkali plants and iron foundries, and have been proposed for industrial boilers.

Indiana Mercury Air Deposition Program

IDEM, in partnership with the U.S. Geological Survey (USGS), has set up five mercury air deposition monitoring stations throughout Indiana. Data are being collected for both wet and dry deposition. Mercury released into the air (from both natural sources and human sources such as coal-fired power plants, municipal incinerators, and industrial boilers) is generally transported to the surface of the earth through precipitation. Mercury has been detected at precipitation monitoring stations throughout North America. USGS, in cooperation with IDEM, established and operates the precipitation-monitoring network for mercury in Indiana. This monitoring program is coordinated through the IDEM Mercury Work Group and is funded by the USGS and IDEM's Office of Air Quality and Office of Water Quality. An overview of the IDEM/USGS Monitoring Program and currently available data summaries for the Indiana monitoring network are available at http://www.in.gov/idem/mercury/air/index.html.

Chlorine Industry Voluntary Mercury Reduction Commitment

The Chlorine Institute released its *Sixth Annual Report to EPA*, showing a 74 percent capacity-adjusted reduction in mercury consumption by the U.S. chlor-alkali industry between 1995 and 2002, exceeding this sector's commitment to reduce mercury use by 50 percent by 2005. Including shutdowns of mercury cell factories, mercury use has decreased 81 percent. While this industry has reduced mercury consumption and purchases significantly since 1995, the *Sixth Annual Report* shows no significant change in mercury consumption between 2001 and 2002. Actual mercury purchases by the chlor-alkali industry increased in 2002, because of decisions by some factories to increase the amount of mercury in use within the mercury cells, a change which is expected to increase efficiency and reduce mercury consumption.

Mercury Switches in Motor Vehicles

The Alliance of Auto Manufacturers, a trade association of nine car and light truck manufacturers, reports that the use of mercury

switches in motor vehicles in the U.S. ended in December 2002. These switches represented 97 percent of the mercury that was contained in cars and light trucks. The remaining mercury-containing devices in motor vehicles range from 0.5 mg to 5 mg of mercury, and research is ongoing to find a replacement for the mercury that is used in these components.

Mercury in Auto Scrap

Use of mercury-containing switches in automobiles produced for the North American market ceased with the 2003 model year. Several Great Lakes States are implementing programs to remove mercury switches already placed in autos. A workshop organized by the US EPA Office of Solid Waste in August 2003 brought together States from across the U.S. to discuss implementing programs to address this issue. Moreover, implementation of clean scrap requirements through a new air emissions standard for iron foundries will require that suppliers of auto scrap to these facilities remove mercury light switches.

Auto Salvage Facility Sector Project

IDEM recently concluded the compliance assistance phase of its auto salvage facility sector project. This phase consisted of 11 compliance assistance workshops held across the state of Indiana. Close to 200 individuals attended these workshops, including facility owners, county agency personnel from health departments, and plan commissioners and staff from several Solid Waste Management Districts. PowerPoint presentations for each of the topics covered during the workshops, as well as a copy of the compliance assistance manual, can be obtained by visiting the project website at www.in.gov/idem/autosalvage. The manual provides the auto salvage facility sector with environmental regulatory information (e.g., how to identify and remove mercury-containing switches from vehicles). The project is now set to enter the inspection phase, which will consist of conducting multimedia compliance inspections across the state. Enforcement will be taken as appropriate. It is anticipated that inspections will begin in early November 2003.

Voluntary Mercury Pollution Prevention Initiative

The Voluntary Mercury Pollution Prevention Initiative was signed in September 1998 by ISG Burns Harbor (formerly Bethlehem Steel), Ispat Inland Inc., Indiana Harbor Works, and US Steel Gary Works. Also signatory to the initiative were the Lake Michigan Forum, US EPA Region 5, and the IDEM. The agreement called for the companies to inventory sources of mercury, such as manometers and switches, and identify replacement/disposal options. The agreement also called for specific action plans and specific reduction goals.

Since the signing of the agreement, these three mills have eliminated over 3,700 pounds of mercury from their plants, and are on target to meet a goal of 90 percent reduction in mercury in these facilities by 2008. The US EPA and IDEM are now considering using this voluntary initiative as a template for similar programs for other industries and other areas.

In September, 2003, the three steel mills received a Quality of Life Award for their contribution to the quality of life in northwest Indiana due to this mercury reduction effort. Formed in 1997, the Quality of Life Council promotes comprehensive sustainable development in Lake, Porter, and LaPorte Counties, Indiana. In his remarks at the presentation of the award, Valparaiso Mayor David Butterfield said that the award epitomized the goals of the council: economic development, environmental health, and social equity.

Lamp Recycling Increasing

The Association of Lighting and Mercury Recyclers (ALMR), a non-profit organization representing lamp recyclers in the U.S., recently estimated that 150 million mercury-containing lamps were recycled in the U.S. in 2002—twice the amount recycled in 1997. Using the number of lamps sold five years ago (since lamps last an average of 5 years), ALMR and the National Electrical Manufacturers Association (NEMA)

estimate that the overall lamp recycling rate in 2002 was 22.4 percent. Almost all lamp recycling is from non-residential users (business, commercial, institutional). The non-residential recycling rate was 27.6 percent. ALMR, the Solid Waste Association of America, and NEMA were awarded a grant by the US EPA to undertake a nationwide lamp recycling promotion program.

Thermostat Recycling

The Thermostat Recycling Corporation (TRC), a U.S. non-profit organization, recently announced that it had recovered nearly one ton of mercury from 221,000 used mercury switch thermostats between January 1998, when the program began, and June 2003. The TRC collected 358 pounds of mercury in the first half of 2003. If collections continued at the same rate throughout the rest of 2003, this would represent a 35 percent increase in the amount of mercury collected over 2002 and a 78 percent increase in mercury collected over 2001.

Indiana Mercury Thermostat Reduction and Recycling Pledge Program

The Mercury Thermostat Reduction and Recycling Pledge Program is the first of several initiatives to voluntarily reduce the amount of mercury-containing devices that may be found in Indiana homes. Since the beginning of the program in September 1997, nearly 200 heating, ventilation, and air-conditioning (HVAC) suppliers and contractors have signed up to participate in the voluntary program. Program participants are working with the Thermostat Recycling Corporation to utilize free recycling of discarded mercury-containing thermostats. For more information, visit IDEM's website at http://www.in.gov/idem/mercury/programs/hvac/index.html.

Indiana Mercury School Pledge and Lab Cleanup

On July 1, 2003, the Indiana Mercury and Mercury Products Law went into effect, restricting the sale of mercury-added novelties, thermometers, equipment, and mercury compounds for use in school laboratories, and the general sale of mercury-containing commodities. As a result, many Hoosier schools joined the Indiana Mercury Reduction and Recycling for Schools pledge program in an effort to remove mercury from their schools. There are currently over 400 Indiana schools in the program. To view the pledge, visit http://www.in.gov/idem/kids/mercury/schoolpledge.pdf. In addition to the school pledge program, IDEM, using EPA funds, provided assistance to 19 Indiana schools to clean up their science chemical closets.

Wisconsin Department of Natural Resources Mercury Reduction Program

Wisconsin's Department of Natural Resources (WDNR) started a mercury reduction program in 1998. Its goals are to: 1) reduce the public's use of mercury-containing products by promoting alternatives; 2) promote recycling of mercury products that continue to be used; and 3) reduce the potential for mercury spills. The program focuses on sectors where mercury products have historically been used. These include healthcare facilities; dental facilities; schools; heating, ventilation and air conditioning contractors; dairy farms; auto scrap yards; and households. The WDNR partnered with 22 of Wisconsin's largest municipalities in implementing mercury education and recycling programs.

Year	*Mercury Collected (lbs)*
1998-99	5100
2000-01	6600
2002	1000
2003 (Reported to date)	500
Total	**13,200**

The table reports the results of WDNR's mercury reduction program collection. As of October 2003, the dairy manometer program had removed and/or replaced 525 mercury manometers, bringing the total amount of

mercury collected to approximately 405 pounds. By the end of 2002, the auto switch sector had successfully removed 6,180 switches from automobiles before they were retired to a scrap yard. This equates to roughly 14 pounds of mercury. All of these programs are supported by U.S. federal and state grants, both to WDNR and mercury reduction communities.

Publicly Owned Treatment Works and Mercury Outreach in Indiana

In July 2003, IDEM received a Pollution Prevention Incentives for States (PPIS) grant from the US EPA Region 5 to provide workshops and on-site assistance and training to publicly owned treatment works (POTWs) through outreach to their local communities. The grant is an effort to reduce mercury in POTW influent and effluent. The Clean Manufacturing Technology Institute, local POTWs, other government representatives, and many more have agreed to participate in the stakeholder group. Further outreach could include training on incorporating pollution prevention into pretreatment permits.

Wisconsin DNR Community Mercury Reduction Project

Wisconsin Department of Natural Resources (WDNR) started a mercury reduction program in 1998. Its goals are to: 1) reduce the public's use of mercury-containing products by promoting alternatives; 2) promote recycling of mercury products that continue to be used; and 3) reduce the potential for mercury spills. The program focuses on sectors where mercury products have historically been used. These include healthcare facilities; dental facilities; schools; heating, ventilation and air conditioning contractors; dairy farms; auto scrap yards; and households. The WDNR partnered with 22 of Wisconsin's largest municipalities in implementing mercury education and recycling programs.

Wisconsin Dairy Mercury Manometer Replacement Program

The Dairy Mercury Manometer Replacement Project was started in 1998. The goal of this project is to replace all of the mercury manometers that are still on Wisconsin dairy farms. The farmers who choose to replace their mercury-filled manometer with a mercury-free gauge effectively receive a $200 reimbursement from an EPA grant to the Wisconsin DNR. The dairy equipment service providers receive a $100 reimbursement to find and remove a mercury manometer from a farm that is no longer milking. Participating dairy equipment service providers perform the work and a licensed hazardous waste hauler picks up the mercury from the equipment dealers. To date, 525 manometers have been removed or replaced by non-mercury manometers, which brings the amount of mercury collected and recycled to 405 pounds. Grant money from the EPA's Great Lakes National Program Office (GLNPO) and the Great Lakes Protection Fund has made this project possible.

Wisconsin Auto and Appliance Mercury Switch Recycling Project

In January 2002, the Wisconsin DNR partnered with Concerned Auto Recyclers of Wisconsin (CARS), the Wisconsin Institute of Scrap Recycling Industries (WISRI), and the Storm Water Cooperative Compliance Programs (CCPs) to help reduce mercury releases from auto switches into Wisconsin waters. As of July 2003, there were roughly 80 auto and scrap recyclers participating. So far the project has collected 200 lbs of mercury containing devices, most of which included auto mercury switches. The switches only take a few minutes to remove. Once removed, Wisconsin auto and scrap recyclers can take the mercury switches to twelve established mercury switch drop-off sites around the state. The cost of picking up and recycling the switches is currently paid for by a Great Lakes National Program Office (GLNPO) grant from EPA. Instructions for the removal, storage and transport of switches are available at http://www.dnr.state.wi.us/org/caer/cea/assistance/scrap/switches/removal.htm.

WDNR Mercury Program Collection Totals

1998-1999: Free recycling of mercury products from medical, dental, and school facilities. 5,100 lbs. Hg
1999-2001: Free recycling of mercury products from all sectors. 6,600 lbs. Hg
2002-2003: Free recycling of mercury products

from all sectors. 1,500 lbs. Hg
Manometer Project: 525 manometers collected which yielded approximately 405 pounds of mercury
Auto Switch Collection: 6,180 auto switches (14 lbs. Elemental Hg)

TOTAL COLLECTIONS: 13,620 lbs. Hg recycled

Mercury Pollutant Minimization Programs

Under NR106.145, a new rule administered by the Wisconsin Department of Natural Resources (WDNR), a Mercury Pollutant Minimization Program is required when treatment plant effluent has been demonstrated to exceed 1.3 ng/L water quality standard using low-level mercury analytical procedures. A temporary variance to the water quality standard is granted in exchange for planning and implementing a local mercury minimization program. About 100 of the largest municipal wastewater treatment plants in Wisconsin will need to implement mercury minimization programs during the next ten years. Low-level mercury effluent monitoring data is currently being collected. Mercury Pollutant Minimization Programs will need to be submitted to WDNR starting at the end of 2005. A website for the NR106 rule can be found at www.dnr.state.wi.us/org/water/wm/ww/mercury/mercury.htm.

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